



Word Reading Instruction Methods: The Evidence Concerning Phonics

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Introduction

The primary goal of this short entry is to explore some issues concerning the teaching of word reading skills to young children, as well as the best evidence on the most effective reading instruction methods. This entry will thus consider controversies regarding the use of phonics, and will discuss statistical meta-analytic studies and systematic and critical evidence-based reviews from Canada, the US, the UK, and The Netherlands (analyzing English). These different forms of review articles are the focus here as they probably provide the most reliable evidence across studies of the effectiveness of teaching methods. The reviewed research suggests that the explicit teaching of phonics is an important part of effective early literacy programs. The relative effectiveness of various phonics programs will also be considered.

Research Questions

1. What is phonics instruction? Is it really controversial?
2. What does the evidence say on this issue?
3. What are differential effects of phonics instruction?

Recent Research Findings

What is phonics instruction? Is it really controversial?

The skill of reading words accurately and fluently is seen by many as a key prerequisite to reading comprehension. *Phonics* is the practice of pronouncing individual words from the individual sounds of letters or letter clusters. For example, sounds associated with the letters 'c'- 'a'- 't' can be assembled to pronounce the word 'cat'. The reverse is required to use phonics to spell words; a child learns to spell words by sounding out the word letter by letter.

The practice of phonics is related to, but conceptually distinct from, the much-discussed concept of phonological awareness. So what is phonological awareness? *Phonological awareness* can be defined as the ability to reflect on the sound structure of spoken language. Tasks such as identifying the speech sound associated with the initial letter of a word such 'c' in 'cat', judging that two words (e.g., 'cat', 'hat') rhyme or segmenting or blending the individual sounds of a word ('c'- 'a'- 't'). Phonological awareness is clearly important in the effective use of phonics, but unlike phonics does not necessarily require knowledge of word spellings to complete. Thus pre-readers who know little or nothing

about the written form of words can experience success in some phonological awareness tasks such as rhyme judgments.

Debates regarding the most effective type of phonics instruction have led to disagreement between reading researchers. For many years, some researchers have placed direct instruction in the analysis of words in a text into phonemes (individual sounds) and graphemes (all of the letters and letter combinations representing a phoneme) at the centre of effective early reading instruction (e.g. Adams, 1990; Chall, 1967). By contrast, other researchers, proponents of a 'whole language' approach, have been of the view that reading should not involve such molecular analysis. Advocates of this approach (e.g., Goodman, 1992/1993) have argued that the break down of words into phonemes detracts from the primary and natural purpose of reading, which is to communicate meanings. In a whole language approach, children are encouraged to learn to read words through multiple exposures to certain words and their reflection upon the texts that they have read (e.g., Smith, 2004). Direct instruction of phonics is not a primary focus of this approach. Finally, there have been a few researchers who argue that the best elements of the whole language and phonics approaches should be combined to create a 'balanced' reading curriculum (e.g., Pressley, 1998).

What does the evidence say on this issue?

There are numerous narrative reviews of well-designed word reading intervention studies that have sought to teach children using phonics approaches, as well as a few statistical meta-analytic reviews of such studies. These latter studies seek to analyze the overall statistical effectiveness of all interventions that have been published. Among the earliest statistical meta-analytic studies was that of Wagner (1988), who reported a significant and quite large overall effect across seven reading interventions published at that time. The two inclusion criteria for each study were that the study (1) involved teaching phonological awareness and (2) measured either reading or phonological awareness after the intervention. This review must be considered as weak evidence for teaching interventions since Wagner did not report *change in reading ability from before to after the intervention* and also combined reading and phonological awareness outcome measures.

A more extensive systematic review and statistical meta-analysis was undertaken by Bus and van IJzendoorn (1999) on all reading interventions published at that point. A subset analysis, based solely on those studies carried out in the United States, was also undertaken to maximize capacity for generalization of conclusions. The aim of the study was to explore phonological awareness rather than phonics *per se*, but the paper includes relevant data on this latter issue. This meta-analysis showed that phonic interventions combining phonological awareness training (especially identifying and manipulating speech sounds within syllables) were effective when combined with training of letter-sound knowledge for reading, and improved phonological awareness itself. Interestingly, this meta-analysis found only a modest link between amount of gain in reading and duration of phonic intervention program. Bus and van IJzendoorn concluded that phonics and phonological awareness are important in English, but not to the exclusion of other factors that have emerged from other meta-analyses. For example, they point out that meta-analysis of joint book reading with pre-school children

produces an effect size at least as large as early phonic interventions (e.g., Bus, van IJzendoorn, & Pellegrini, 1995).

Yet another systematic and critical evidence-based review of the existing research on *phonological awareness* was undertaken by Troia (1999). Troia pre-identified methodological criteria for the inclusion of individual studies, and identified some of the most common weaknesses in previously published reading-intervention research studies. He proposed a metric for evaluating good and poor intervention research based on these and other basic methodological criteria. He then used this metric to analyze 22 studies identified from published research archives as having distinct treatment and control conditions from around the world (including studies in Belgium, Israel, Portugal, and Scandinavia, as well as in the English-speaking world). Troia reported that there were no entirely methodologically adequate studies, and concluded that despite methodological weaknesses, on balance, the evidence probably suggested that phonological training aided reading acquisition.

In 1997, the U.S. congress charged the director of the National Institute of Child Health and Human Development with the task of setting up a national panel on research in early literacy (The National Reading Panel, NRP). A statistical meta-analysis identified some 52 reading intervention studies exploring the impact of phonological awareness on reading and 38 studies exploring the impact of phonics on reading accuracy. From a large initial sample of papers, results were reported by Ehri, Nunes, Willows, Schuster, Yaghoub-Zadeh, and Shanahan (2001a) in *Reading Research Quarterly* (phonological awareness studies) and in *Review of Educational Research* by Ehri, Nunes, Stahl, and Willows (2001b) (phonics instruction studies).

According to Ehri et al. (2001a), the meta-analysis suggested that the most effective *phonological awareness* interventions (1) combined phonological skills training (skills in manipulating the sounds within a syllable) with letter-sound knowledge teaching; (2) consistently targeted just one or two reading-related phonological operations (such as segmenting and blending all sounds such as those associated with the letters 'c'- 'a'- 't'); and (3) were delivered over a relatively short total period of between 5-15 hours. Interventions that did this systematically through explicit instruction were more effective than those approaches where phonics was introduced indirectly, for example, in the context of story reading, or where attention was directed only to initial letters rather than full phonic analysis of all letters in words. Perhaps most important of all was a fourth point, that *preventative* interventions with children 'at-risk' of reading difficulties were identified as being significantly more effective than *remedial* interventions with children already identified as experiencing reading disability. Finally, interventions delivered to small groups of children were at least as effective as one-to-one tutoring.

It would be something of an understatement to say that the NRP review generated a great deal of interest and elicited many responses. Predictably, some of the evaluations of the NRP report were positive (e.g., McCardle & Chhabra, 2004) and some negative (e.g., Allington, 2002; Cunningham, 2001; Garan, 2001; Krashen, 2001). Uncritical support of the proposals in some areas was matched by opposition in others. Some influential reviews have, for example, implied that the NRP focused *exclusively* on

phonics and that it made no reference to other elements such as reading fluency and reading comprehension (see e.g., Smith, 2004, page 322, as one example of this). This makes accurate dissemination and reasoned discussion of findings very hard.

What are differential effects of phonics instruction?

There has also been significant debate about the role of different kinds of phonics instruction (e.g., Johnston & Watson, 2004). One debate has concerned the relative efficacy of *synthetic* and *analytic* phonic methods. Analytic phonics is a form of phonics teaching in which 'sounding-out' words is not explicitly taught or encouraged. Instead, teachers show children how to deduce the common letter and sound in a set of words which all begin or end with the same letter or sound (e.g., *pet*, *park*, *push*, *pen*). By contrast, in synthetic phonics 'sounding-out' is emphasized. For reading, this sounding-out is based on the letters of printed words and is followed by blending of these sounds to produce a spoken word which the learner should recognize (for example, the 'kuh-ahh-tuh' speech sounds associated with the letters in 'cat' are blended for the child to articulate that word). For writing, sounding-out is based on the reverse process of identifying the individual sounds in the to-be-spelled items and writing the letters associated with them (e.g., Torgerson, Brooks, & Hall, 2006).

A very recent and carefully constructed meta-analysis of the worldwide evidence base relevant to this issue of the role of different approaches to phonics in reading was carried out for the British government by Torgerson et al. (2006). They criticized the NRP report on a range of methodological grounds, for example, inclusion of both randomized control trial (RCT) and non-RCT studies. RCT studies control much better for the effects of extraneous variables that might otherwise lead to false positive or false negative results (see the review by Savage on methods of educational research for more detail on this issue). Torgerson et al. also argue that the NRP report explored only published papers and generalized control group findings to make desired comparisons in a way that may lead to an overestimation of effect sizes.

The research questions in Torgerson et al. (2006) regarded both the effects of different phonics programs and their long-term importance. The authors found very few well-designed (RCT) studies that contrasted synthetic and analytic approaches to phonics, so the evidence base is weak. Of the few that were available, modest advantages for synthetic approaches were evident. In addition, there was little high-quality research on the impact of phonics beyond the early years. Only three well-designed studies pursued medium-term follow-ups of original intervention programs. Thus, there exists no strong evidence on the nature and importance of phonics beyond Kindergarten and grades 1 and 2. There was also insufficient evidence from studies of exclusive use of phonics or from studies of systematically varying degree of phonic instruction to draw any reliable conclusions about the amount of systematic phonics that is necessary or ideal in any reading curriculum. The authors concluded that phonics should be placed among other well-supported approaches that should be a part of all (early years) instruction and be part of all initial teacher training.

Conclusion

This review suggests that although evidence in support of phonics in reading is in a general sense strong, the evidence base only takes us so far. There are many unanswered questions about phonics. For example, are some kinds of phonics more effective than other approaches? Might different approaches to phonics be differentially effective for different children? For how long should phonics approaches be delivered and what are the long-term impacts of such approaches? These are exactly the sorts of questions practitioners might be most interested in. More basic work using well-designed RCT studies and subsequent meta-analysis is clearly necessary to advance the evidence-based practice using phonics.

Notwithstanding these concerns, the research base allows us to say some things with confidence about how best to deploy phonics programs. Firstly preventative work early in children's school careers as part of regular classroom teaching for all children is more effective than attempting to remediate problems among older struggling readers. Teachers should thus not 'wait for children to fail' before deploying phonics programs.

Teaching a few skills such as segmenting and blending sounds in words is very important, and is best taught alongside the explicit teaching of letter sounds. Children should practice their phonics skills to mastery and use them in reading 'real books' not just in isolated phonics exercises. Any phonics program should be carefully paced and sequenced to appropriately challenge children, but should be only one (albeit very important) part of a balanced literacy approach which involves work on exploring and understanding a range of texts, writing, spelling. Such approaches can, if well-delivered be fun, enjoyable, and motivating.

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References

- Adams, M. J. (1990). *Beginning to read*. Cambridge, MA: MIT Press.
- Allington, R. L. (Ed.). (2002). *Big brother and the National Reading Curriculum: How ideology trumped evidence*. Portsmouth, NH: Heinemann.
- Bus, A. G., & van IJzendoorn, M. H. (1999). Phonological awareness and early reading: A meta-analysis of experimental training studies. *Journal of Educational Psychology, 91*, 403-414.
- Bus, A. G., van IJzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research, 65*, 1-21.
- Chall, J. S. (1967). *Learning to read: The great debate*. New York: McGraw Hill.
- Cunningham, J. W. (2001). Book review of the report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. *Reading Research Quarterly, 36*, 326-335.
- Ehri, L., Nunes, R. S., Willows, D., Schuster, B. V., Yaghoub-Zadeh, Z., & Shanahan, T. (2001a). Phonemic awareness instruction helps children learn to read: Evidence from the National Reading Panel's meta-analysis. *Reading Research Quarterly, 36*, 250-287.
- Ehri, L., Nunes, R. S., Stahl, S., & Willows, D. (2001b). Systematic phonics instruction helps students learn to read: Evidence from the National Reading Panel's meta-analysis. *Review of Educational Research, 71*, 393-447.
- Garan, E. M. (2001). Beyond the smoke and mirrors. *Phi Delta Kappan, 82*, 500-506.
- Goodman, K. (1992/1993). Gurus, professors, and the politics of phonics, in Point / Counterpoint: Whole language versus direct instruction models. *Reading Today, 10*(3), 8-10.
- Johnston, R. S., & Watson, J. E. (2004). Accelerating the development of reading, spelling, and phonemic awareness skills in initial readers. *Reading and Writing: An Interdisciplinary Journal, 17*, 327-357.
- Krashen, S. (2001). More smoke and mirrors: A critique of the National Reading Panel (NRP) report on fluency. *Phi Delta Kappan, 83*, 118-122.
- McCardle, P., & Chhabra, V. (Eds.). (2004). *The voice of evidence in reading research*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Pressley, M. (1998). *Reading instruction that works*. New York: Guilford Press.
- Smith, F. (2004). *Understanding reading* (6th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Torgerson, C., Brooks, G., & Hall, J. (2006). *A systematic review of the research literature on the use of phonics in the teaching of reading and spelling*. Sheffield, UK: Department for Education and Skills. Retrieved July 15, 2008, from http://www.dfes.gov.uk/research/data/uploadfiles/RR711_.pdf
- Troia, G. A. (1999). Phonological awareness intervention research: A critical review of the experimental methodology. *Reading Research Quarterly, 34*, 28-52.
- Wagner, R. (1988). Causal relations between the development of phonological processing abilities and the acquisition of reading skills: A meta-analysis. *Merrill-Palmer Quarterly, 34*, 261-279.

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